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TITLE: Peroxyacid compound use in odor reduction

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INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Lokkesmoe; Keith D.	Savage	MN		
Hei; Robert D.	Baldwin	WI		
Schilling; Joel J.	South St. Paul	MN		

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CLAIMS:

We claim:

1. A process for removing an odor from an atmospheric effluent, the process comprising:

(a) contacting an atmospheric effluent comprising an odor component with an aqueous peracid treatment composition, forming an oxidized odor component and dissolving the oxidized odor component or an odor component in the aqueous treatment composition to form an aqueous treatment composition containing the odor or oxidized odor and an effluent with reduced odor;

(b) removing at least a portion of the aqueous treatment composition containing the odor or oxidized odor; and

(c) returning the effluent with reduced odor to the atmosphere.

2. The process of claim 1 wherein the atmospheric effluent originates from a plant treating organic material, the odor selected from the group consisting of an organic sulfur compound, an oxo-hydrocarbon, an organic nitrogen or mixtures thereof.3. The process of claim 1 wherein the odor is removed as measured by an odor threshold score which is reduced by 20% or more.

4. The process of claim 1 wherein a wet scrubber tower is used to contact the effluent with the treatment.

5. The process of claim 1 wherein a venturi contactor is used to contact the effluent with the treatment.

6. The process of claim 4 wherein in the wet scrubber tower, the plant atmospheric effluent is a gaseous stream passing vertically against a countercurrent flow of finely divided particulates or thin streams of the aqueous peroxyacid treatment composition.

7. The process of claim 1 wherein the aqueous treatment composition comprises a peroxyacetic acid composition.

8. The process of claim 7 wherein the aqueous treatment composition comprises less than 4 parts by weight of acetic acid per each part of peroxyacetic acid and a sequestrant.

9. The process of claim 7 wherein the aqueous treatment composition comprises less than 2.5 parts by weight of acetic acid per each part of peroxyacetic acid.
10. The process of claim 7 wherein the aqueous treatment composition comprises less than 5 parts by weight of hydrogen peroxide per each part of peroxyacetic acid.
11. The process of claim 7 wherein the aqueous treatment composition comprises less than 2 parts by weight of hydrogen peroxide per each part of peroxyacetic acid.
12. The process of claim 1 wherein the aqueous peracid treatment composition comprises a residual acetic acid concentration of less than about 600 parts by weight per one million parts of the treatment.
13. The process of claim 1 wherein the aqueous peracid treatment composition comprises a residual acetic acid concentration of less than about 450 parts by weight per one million parts of the treatment.
14. The process of claim 1 wherein the aqueous peracid treatment composition comprises a residual acetic acid concentration of less than about 250 parts by weight per one million parts of the treatment.
15. The process of claim 1 wherein the aqueous peracid treatment composition comprises a residual peroxy acid and hydrogen peroxide concentration resulting in an active oxygen concentration of less than about 400 parts by weight of active oxygen per one million parts of the treatment.
16. The process of claim 1 wherein the aqueous peracid treatment composition comprises a residual peroxy acid and hydrogen peroxide concentration resulting in an active oxygen concentration of less than about 270 parts by weight of active oxygen per one million parts of the treatment.
17. The process of claim 1 wherein the aqueous peracid treatment composition comprises a residual peroxy acid and hydrogen peroxide concentration resulting in an active oxygen concentration of less than about 150 parts by weight of active oxygen per one million parts of the treatment.
18. The process of claim 7 wherein the aqueous treatment composition comprises 1 to 90 weight percent (wt %) of acetic acid, 1 to 50 wt % of hydrogen peroxide, a sequestrant, and 1 to 40 wt % of peroxyacetic acid.
19. The process of claim 8 wherein the sequestrant comprises 1-hydroxyethylidene-1,1-diphosphonic acid.
20. The process of claim 6 wherein one cubic foot of plant atmospheric effluent is contacted with about 0.01 to 10 liters of aqueous treatment solution.
21. The process of claim 1 wherein at least about 20% of an odor forming compound selected from the group consisting of an oxo-hydrocarbon, organomercaptan, an amine, ammonia, hydrogen sulfide or mixtures thereof, is absorbed and removed in the process from the plant atmospheric effluent and wherein the odor threshold is reduced by at least 20%.
22. The process of claim 6 wherein the scrubber comprises a packed column.
23. The process of claim 6 wherein, in the vertical scrubber column, the plant atmospheric effluent is a gaseous stream passing vertically with a cocurrent flow of finely divided particulates or thin streams of the aqueous peroxyacid treatment composition.